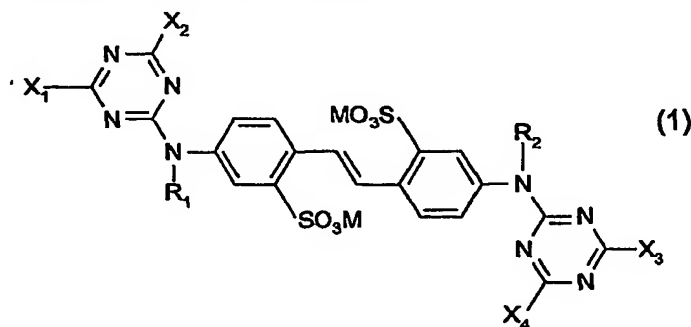


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Claims

1. A storage-stable fluorescent whitener formulation comprising

- (a) 5 – 60% by weight, based on the total weight of the whitener formulation, of at least one compound of formula (1)



wherein

R₁ and R₂ are, independently from each other, hydrogen; unsubstituted C₁–C₈alkyl or substituted C₁–C₈alkyl,

X₁, X₂, X₃ and X₄ are, independently from each other, -N(R₃)R₄ or -OR₅, wherein

R₃ and R₄ are, independently of each other, hydrogen; cyano; unsubstituted C₁–C₈alkyl; substituted C₁–C₈alkyl; unsubstituted C₅–C₇cycloalkyl or unsubstituted C₅–C₇cycloalkyl; or

R₃ and R₄, together with the nitrogen atom linking them, form a heterocyclic ring, and

R₅ is unsubstituted C₁–C₈alkyl or substituted C₁–C₈alkyl, and

M is hydrogen or a cation,

- (b) 0.01 – 1% by weight, based on the total weight of the whitener formulation, of at least one anionic polysaccharide,

- (c) 0 – 25% by weight, based on the total weight of the whitener formulation, of at least one electrolyte,

- (d) 0 – 20% by weight, based on the total weight of the whitener formulation, of at least one dispersant,

- (e) 0 – 30% by weight, based on the total weight of the whitener formulation, of at least one further fluorescent whitener,

- (f) 0 – 20% by weight, based on the total weight of the whitener formulation, of at least one further optional component, and

- (g) water to make up 100% by weight.

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2. A storage-stable fluorescent whitener formulation according to claim 1 comprising
5 – 60% by weight, based on the total weight of the whitener formulation, of at least
one compound of formula (1), wherein
R₁ and R₂, independently from each other, hydrogen or C₁-C₄alkyl, especially hydrogen,
5 X₁, X₂, X₃ and X₄ are independently from each other a radical of formula -N(R₃)R₄, wherein
R₃ and R₄ are preferably, independently from each other, hydrogen; cyano; C₁-C₈alkyl
which is unsubstituted or substituted by hydroxy, carboxy, cyano, -COOH, -
H₂NC(NH)NH₂-, -CONH₂ or phenyl, and wherein the C₁-C₈alkyl group is uninterrupted
or interrupted by -O-; unsubstituted C₅-C₇cycloalkyl or C₁-C₄alkyl-substituted C₅-
10 C₇cycloalkyl; or
R₃ and R₄, together with the nitrogen atom linking them, form an unsubstituted
morpholino, piperidine or pyrrolidine ring or a C₁-C₄alkyl-substituted morpholino,
piperidine or pyrrolidine ring.
- 15 3. A storage-stable fluorescent whitener formulation according to claim 1 comprising
5 – 60% by weight, based on the total weight of the whitener formulation, of at least
one compound of formula (1), wherein
X₁ and X₃ are -NH₂,
X₂ and X₄ are, independently of each other, a radical of formula -N(R₃)R₄, wherein
20 R₃ and R₄ are, independently from each other, hydrogen; cyano; C₁-C₈alkyl which is
unsubstituted or substituted hydroxy, carboxy, -COOH, cyano, -CONH₂, NHC(NH)NH₂
or phenyl, and wherein the C₁-C₈alkyl group is uninterrupted or interrupted by -O-;
unsubstituted cyclohexyl or C₁-C₄alkyl-substituted cyclohexyl; or
R₃ and R₄, together with the nitrogen atom linking them, form an unsubstituted
25 morpholino, piperidine or pyrrolidine ring or C₁-C₄alkyl-substituted morpholino,
piperidine or pyrrolidine ring.
4. A storage-stable fluorescent whitener formulation according to anyone of the preceding
claims comprising
30 5 to 50% by weight, preferably 10 to 50% by weight, based on the total weight of the
formulation, of at least one compound of formula (1).
5. A storage-stable fluorescent whitener formulation according to anyone of the preceding
claims wherein the anionic polysaccharide is selected from the group consisting of sodium

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alginate, carboxymethylated guar, carboxymethylcellulose, carboxymethyl-starch, carboxymethylated locust bean flour and xanthan gum.

5 **6. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising**
0.05 to 0.5% by weight, preferably 0.1 to 0.3% by weight, based on the total weight of the formulation, of at least one anionic polysaccharide.

10 **7. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims wherein the electrolyte or the mixture of electrolytes are selected from the group consisting of alkali metal salts and salts of lower carboxylic acids.**

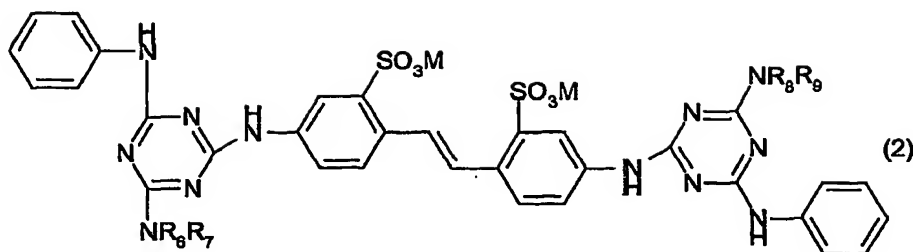
15 **8. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising**
0.5 to 20% by weight, preferably 0.5 to 15% by weight, based on the total weight of the formulation, of at least one electrolyte.

20 **9. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims wherein the dispersant or the mixture of dispersants are selected from the group consisting of alkylbenzenesulfonates, alkyl or alkenyl ether-sulfonate salts, saturated or unsaturated fatty acids, alkyl or alkylene ether-carboxylic salts, sulfo-fatty acid salts or esters, phosphate esters, polyoxyethylene alkyl or alkenyl ethers, polyoxyethylene alkylvinyl ethers, polyoxypropylene alkyl or alkenyl ethers, polyoxybutylene alkyl or alkenyl ethers, higher fatty acid alkanolamides or alkylene oxide adducts, sucrose/fatty acid esters, fatty acid/glycol**
25 **monoesters, alkylamine oxides and condensation products of aromatic sulfonic acids with formaldehyde and lignin-sulfonates.**

30 **10. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising 0.1 to 20% by weight, preferably 0.1 to 10% by weight, based on the total weight of the formulation, of at least one dispersant.**

11. A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising of at least one further fluorescent whitener of formula (2)

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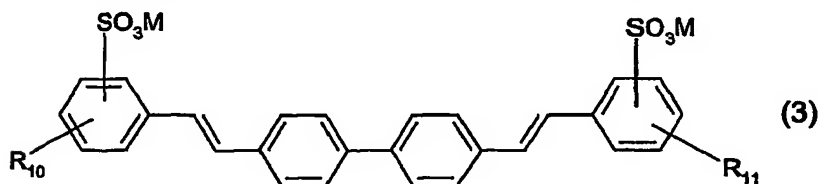
wherein

R₆ and R₈, independently from each other, are hydrogen; unsubstituted C₁-C₈alkyl or substituted C₁-C₈alkyl,

- 5 R₇ and R₉, independently from each other, are hydrogen; unsubstituted phenyl; unsubstituted C₁-C₈alkyl or substituted C₁-C₈alkyl, or
 NR₆R₇ and/or NR₈R₉ form a morpholino ring,
 and M is hydrogen or a cation.

- 10 **12.** A storage-stable fluorescent whitener formulation according to claim 11 wherein
 R₆ and R₈, independently from each other, are hydrogen; unsubstituted C₁-C₂alkyl or C₁-C₄alkyl, which is substituted by hydroxy or C₁-C₄alkoxy,
 R₇ and R₉, independently from each other, are unsubstituted phenyl; unsubstituted C₁-C₂alkyl or C₁-C₄alkyl, which is substituted by hydroxy or C₁-C₄alkoxy, or
 15 NR₆R₇ and/or NR₈R₉ form a morpholino ring,
 and M is an alkali metal atom.

- 13.** A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising of at least one further fluorescent whitener of formula (3)



wherein

R₁₀ and R₁₁, independently from each other, are hydrogen; C₁-C₈alkyl; C₁-C₈alkoxy or halogen, and M is hydrogen or a cation.

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- 14.** A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising 0 to 25 % by weight, preferably 0 to 20 % by weight, of at least one further fluorescent whitener of formula (2) and/or formula (3).
- 5 **15.** A storage-stable fluorescent whitener formulation according to anyone of the preceding claims wherein optional components are selected from the group consisting of preservatives; Mg/Al silicates; odour improvers; perfuming agent; antifoam agents; builders; protective colloids; stabilizers; sequestering agents and antifreeze agents.
- 10 **16.** A storage-stable fluorescent whitener formulation according to anyone of the preceding claims comprising 0.1 to 20% by weight, preferably 0.1 to 10% by weight, particularly preferably 0.2 to 5% by weight based on the total weight of the formulation, of at least one optional component.
- 15 **17.** A process for the preparation of a storage-stable fluorescent whitener formulation according to any one of the preceding claims, which comprise mixing the moist filter cake or the dry powder of the fluorescent whitening of formula (1) with least one anionic polysaccharide and water, and homogenizing the formulation.
- 20 **18.** The use of a storage-stable fluorescent whitener formulation according to any one of claim 1 – 16 for the preparation of a detergent composition.